POTENTIAL OF CONTEMPORARY EARTH ARCHITECTURE

FOR LOW IMPACT BUILDING IN BELGIUM

SBE19 Graz
sep 13th 2019

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KNOWLEDGE IN ACTION

Yazd, Iran
(Jasper Van der Linden, 2011)

Haus Rauch, Schlins, Austria, 2008
(Beat Bücher)

Watchtower Negenoord, Belgium, 2016
(Jasper Van der Linden, 2019)

Study: potential of contemporary earth architecture for low impact building in Belgium

1. Advantages and limitations of earth construction: current literature

2. Building Case studies:
   - 2 projects
   - Verify validity of literature
     - Interviews with architects
     - Project study

3. Conclude
   - Financial cost
   - Technical aspects
   - Environmental impact

Literature: advantages and limitations of earth construction

as listed by Egenti C, Khatib J. 2016

ADVANTAGES

LOW COST

ENCOURAGES SELF-HELP

GOOD SOUND INSULATION

GOOD HEAT INSULATION

GOOD FIRE RESISTANCE

IMPROVES INDOOR AIR QUALITY

CAPABLE OF PROVIDING STRONG AND SECURED STRUCTURE

PROMOTES CULTURE, NATURAL MATERIAL

REUSABLE

LOW EMBODIED ENERGY

SAVES ENERGY AND NO EMISSION OF CO_2

SUFFICIENTLY AVAILABLE

LIMITATIONS

NON-STANDARDISED MATERIAL

STRUCTURALLY LIMITED

NON-RESISTANT TO WATER AND LESS RESILIENT

NEEDS HIGH MAINTENANCE

SUITABLE ONLY FOR IN SITU CONSTRUCTION

SPECIAL SKILLS REQUIRED

case studies

bioclass & observation tower

Bioclass, Edegem (Antwerp), 2018
BC architects & studies
(Thomas Noceto)

Observation tower, Negenoord (Limburg), 2016
De gouden liniaal architecten
(Filip Dujardin)

case studies

compressed earth bricks & rammed earth

Bioclass Edegem (Antwerp), 2018
Load-bearing compressed earth bricks
(Thomas Noceto)

Observation tower Negenoord (Limburg), 2016
Rammed earth
(Filip Dujardin)

case study

bioclass (compressed earth bricks)

Bioclass Edegem (Antwerp), 2018
Load-bearing compressed earth bricks
(Thomas Noceto)

Observation tower Negenoord (Limburg)
Rammed earth
(Filip Dujardin)

Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
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Load-bearing compressed earth bricks
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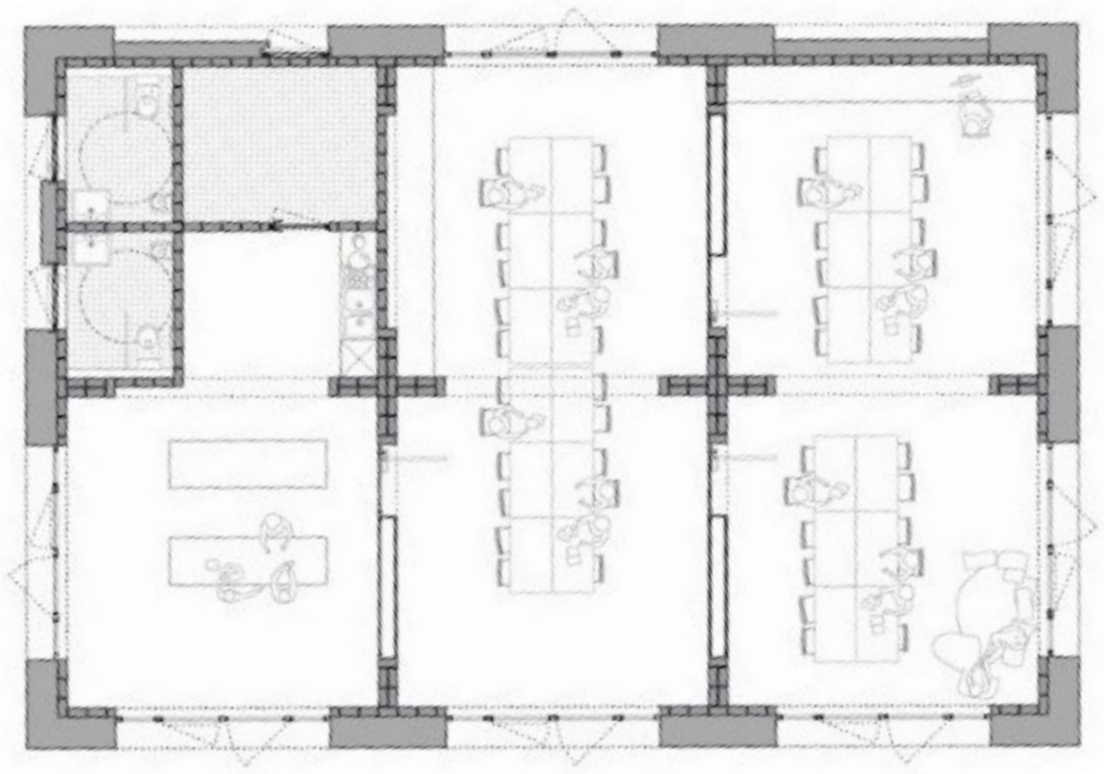
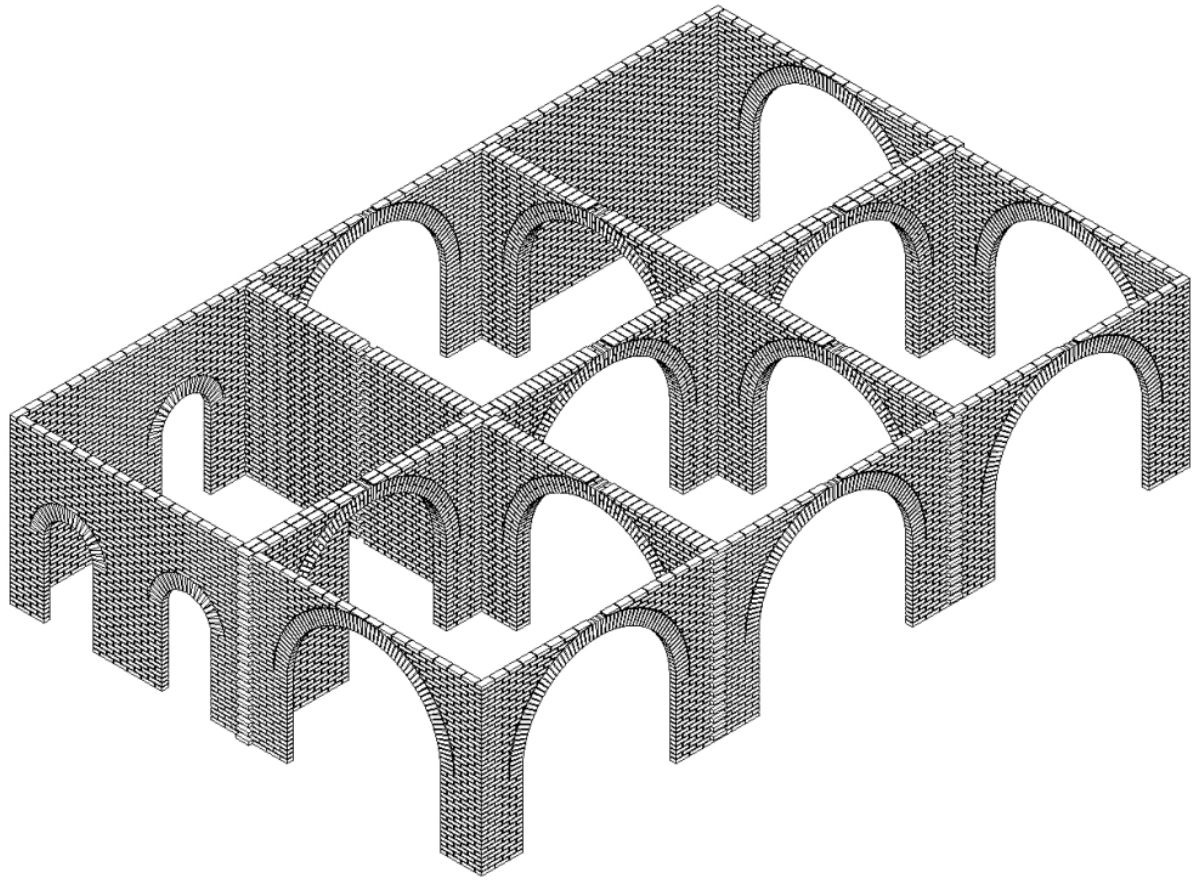




Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(BC architects & studies)

Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(BC architects & studies)

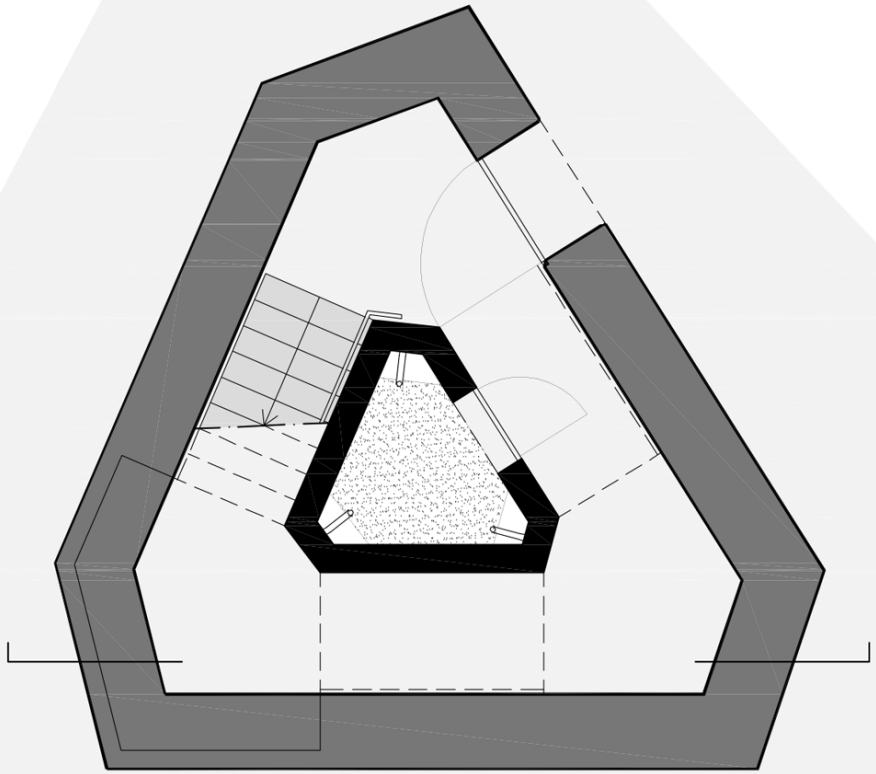
case study

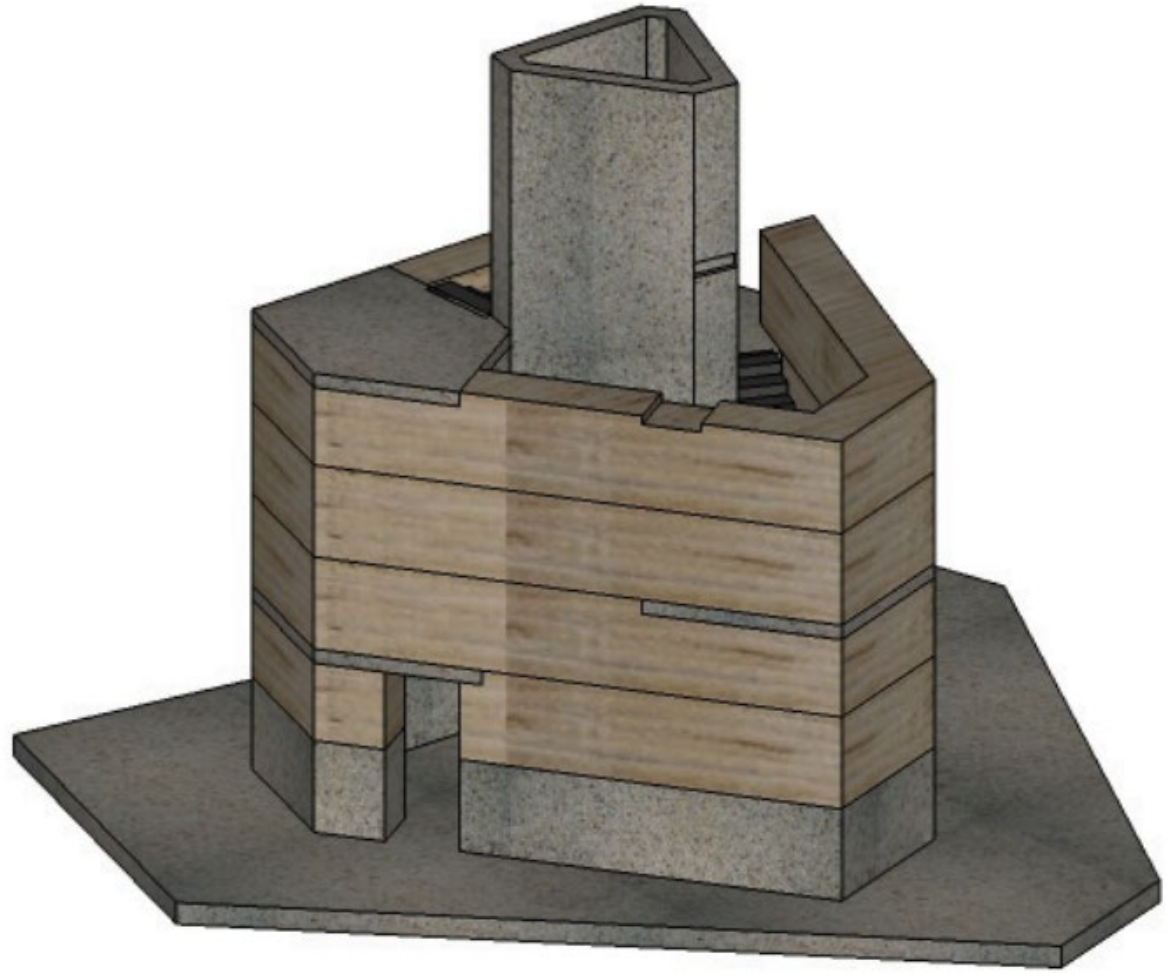
observation tower (rammed earth)

Bioclass, Edegem, 2018
Load-bearing compressed earth bricks
(BC architects & studies)

Observation tower Negenoord (Limburg) - 2016
De gouden liniaal architecten
(Filip Dujardin)

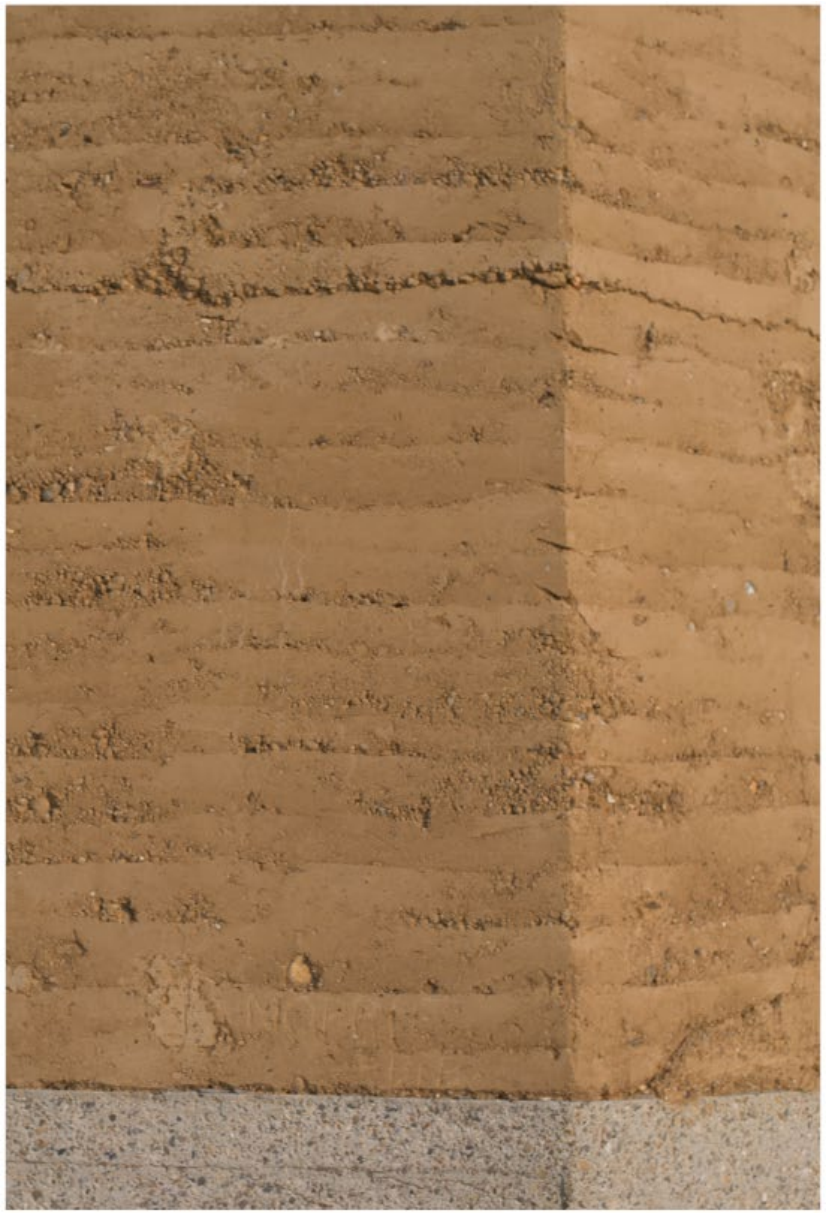
Observation tower, Negenoord
Exterior
(Filip Dujardin)





Observation tower, Negenoord
Plan + 3D

Observation tower, Negenoord
Interior
(Filip Dujardin)



Observation tower Negenoord
Close-up of two walls in 2019
(Jasper Van der Linden)

Observation tower Negenoord
In-situ mixing and construction
(BC architects & studies)

case studies

bioclass & observation tower

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Observation tower, Negenoord (Limburg), 2016
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Conclusions

Financial cost:
not necessarily cheaper than conventional construction

Technical aspects:
no technical reasons for not using earth construction in Belgium

Environmental impact:
earth does offer potential to construct with low environmental impact

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